

CLAIMS

What is claimed is:

1. A file system, comprising:
a plurality of servers configured to store data; and
a master connected to the servers and configured to:
communicate with the servers upon startup of the master to authoritatively
identify the data stored by the servers, and
record location information that identifies ones of the servers that store the data.
2. The system of claim 1, wherein the data corresponds to files stored as chunks by
the servers.
3. The system of claim 1, wherein the master is further configured to control
placement of new data at the servers.
4. The system of claim 3, wherein when controlling the placement of new data, the
master is configured to:
identify one or more of the servers to store the new data based on at least one of
utilization of the servers, prior chunk distribution involving the servers, network topology, and
failure correlation properties associated with the servers, and
place the new data at the identified one or more servers.

5. The system of claim 1, wherein the master is further configured to control redistribution of the data stored by the servers.
6. The system of claim 5, wherein when controlling redistribution of the data, the master is configured to:

select data to redistribute based on a current distribution of the data,

identify one or more of the servers to which to move the selected data, and

move the selected data to the identified one or more servers.
7. The system of claim 1, wherein the master is further configured to monitor a state of the servers.
8. The system of claim 7, wherein the master is configured to exchange heartbeat signals with the servers to determine the state of the servers.
9. The system of claim 8, wherein the heartbeat signals include space utilization information.
10. The system of claim 7, wherein the state of the servers includes information regarding the data stored by the servers.

11. The system of claim 10, wherein the information includes version numbers of the data.

12. The system of claim 1, wherein the location information is not stored persistently by the master.

13. In a file system that includes a master connected to a plurality of servers, the master comprising:

means for performing a startup operation;

means for communicating with the servers during or after the startup operation to authoritatively identify the data stored by the servers; and

means for storing location information that identifies ones of the servers that store the data.

14. A method for maintaining data in a file system that includes a master connected to a plurality of servers, the method, performed by the master, comprising:

communicating with the servers upon startup of the master to authoritatively determine data stored by the servers; and

generating location information based on the data determined to be stored by the servers.

15. A file system, comprising:

a plurality of servers configured to store files as chunks; and

a master connected to the servers and configured to:

authoritatively determine location information by communicating with the servers,
the location information being based on which of the servers store ones of the chunks,
and

update the location information by periodically communicating with the servers to
obtain changes to the location information.

16. A file system, comprising:

a plurality of servers configured to store data; and

a master connected to the servers and configured to:

communicate with the servers to authoritatively determine location information of
the data, the location information being based on which of the servers store the data,

periodically communicate with the servers to obtain changes to the location
information, and

update the location information based on the changes to the location information.

17. A file system, comprising:

a plurality of servers configured to store data; and

a master connected to the servers and configured to:

communicate with the servers to authoritatively determine location information of
the data, the location information being based on which of the servers store the data,

instruct one of the servers to perform an action concerning the data, the action causing a change in the location information, and

update the location information based on the change to the location information upon completion of the action.

18. A file system, comprising:

a plurality of servers configured to store data; and

a master connected to the servers and configured to:

communicate with the servers to authoritatively determine information regarding the data,

instruct one of the servers to perform an action concerning the data, the action causing a state change associated with the information, and

update state information based on the state change upon completion of the action.